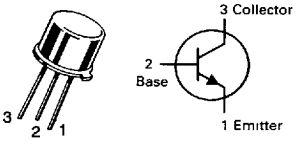
BC140-10, -16
BC141-10, -16

CASE 79-04, STYLE 1
TO-39 (TO-205AD)



AMPLIFIER TRANSISTORS

NPN SILICON

Refer to 2N3019 for graphs.

MAXIMUM RATINGS

Rating	Symbol	BC 140	BC 141	Unit
Collector-Emitter Voltage	V_{CEO}	40	60	Vdc
Collector-Base Voltage	V_{CBO}	80	100	Vdc
Emitter-Base Voltage	V_{EBO}	7		Vdc
Collector Current — Continuous	I_C	1		Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.8 4.6		Watt mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	3.7 20		Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	219	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	50	°C/W

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector Cutoff Current (I_E = 0, V_{CE} = 60 V)	T_A = 150°C	I_{CES}		100 100	nA µA
Collector-Emitter Breakdown Voltage (I_{CES} = 100 µA, I_E = 0)	BC140 Series BC141 Series	$V_{(BR)CES}$	80 100		V
Collector-Emitter Breakdown Voltage(1) (I_C = 30 mA, I_B = 0)	BC140 Series BC141 Series	$V_{(BR)CEO}$	40 60		V
Emitter-Base Breakdown Voltage (I_E = 100 µA, I_C = 0)		$V_{(BR)EBO}$	7		V
ON CHARACTERISTICS					
DC Current Gain(1) (I_C = 100 mA, V_{CE} = 1 V) for BC140, 141, -10 for BC140, 141, -16		h_{FE}	 63 100	 160 250	
Collector-Emitter Saturation Voltage(1) (I_C = 1 A, I_B = 0.1 A)		$V_{CE(sat)}$		1	V
Base-Emitter Voltage(1) (I_C = 1 A, V_{CE} = 1 V)		$V_{BE(on)}$		2	V
SMALL SIGNAL CHARACTERISTICS					
Gain Bandwidth Product (I_C = 50 mA, V_{CE} = 10 V, f = 20 MHz)		f_T	50		MHz
Input Capacitance (V_{EB} = 0.5 V, I_C = 0, f = 1 MHz		C_{ib}		80	pF
Capacitance (I_E = 0, V_{CB} = 10 V, f = 1 MHz)		C_{ob}		25	pF
Turn On Time (I_C = 150 mA, I_{B1} = 7.5 mA)		t_{on}		250	ns
Turn Off Time (I_C = 150 mA, I_{B1} = I_{B2} = 7.5 mA)		t_{off}		850	ns

(1) Pulsed: Pulse Duration = 300 µs, Duty Cycle = 2.0%.